

CLAIMS

1. An optical receiver comprising:

a pre-amplifying unit that performs voltage conversion and amplification of an output of a light-receiving element that receives a light signal and converts the received light signal into a current signal; and

a regenerating unit including a discriminating circuit that receives an output signal of the pre-amplifying unit as an input signal and performs a signal discrimination of the input signal based on a threshold generated based on the input signal, wherein

the pre-amplifying unit includes a first average detecting circuit that detects an average of output signals of the pre-amplifying unit, and controls an amplification gain of the pre-amplifying unit based on an output of comparison between an output of the first average detecting circuit and a predetermined reference voltage, and

the regenerating unit includes a second average detecting circuit that detects an average of input signals to the discriminating circuit, and outputs an output of the second average detecting circuit to the discriminating circuit as a threshold for signal discrimination of the input signal.

2. The optical receiver according to claim 1, wherein the regenerating unit further includes

a comparing circuit that receives an in-phase output and a reverse-phase output of the discriminating circuit as a differential input;

a buffer unit that holds the output of the second average circuit;

a sample-and-hold circuit that holds or transmits an output of the comparing circuit; and

an offset adjusting circuit that adjusts offset components of the buffer unit based on an output of the sample-and-hold circuit.

- 5 3. The optical receiver according to claim 2, wherein
 offset adjustment by the offset adjusting circuit is
 performed in a non-signal period after switching power on.
- 10 4. The optical receiver according to claim 2, wherein
 offset adjustment by the offset adjusting circuit is
 performed in a non-signal period between the light signals.
- 15 5. A discrimination-threshold generating method for an
 optical receiver, the optical receiver including a pre-
 amplifying unit that performs voltage conversion and
 amplification of an output of a light-receiving element
 that receives a light signal and converts the received
 light signal into a current signal, and a regenerating unit
 including a discriminating circuit that receives an output
20 signal of the pre-amplifying unit as an input signal and
 performs a signal discrimination of the input signal based
 on a threshold generated based on the input signal, the
 discrimination-threshold generating method comprising:
 a gain control step of controlling an amplification
25 gain of the pre-amplifying unit based on an output of
 comparison between a first average detection output
 obtained by detecting an average of input signals to the
 pre-amplifying unit and a predetermined reference voltage;
 and
30 a discrimination-threshold outputting step of
 outputting a second average detection output obtained by
 detecting an average of input signals to the discriminating
 circuit to the discriminating circuit as a threshold for

performing signal discrimination of the input signal.